

[54] **MACROMOLECULAR HIGHLY BRANCHED  
HOMOGENEOUS COMPOUND BASED ON  
LYSINE UNITS**

[75] Inventors: **Robert G. Denkewalter**, Westfield;  
**Jaroslav Kolc**, Randolph Twp.,  
Morris County; **William J.**  
**Lukasavage**, Harrison, all of N.J.

[73] Assignee: **Allied Corporation**, Morris  
Township, Morris County, N.J.

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[56] **References Cited**

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*Primary Examiner*—**Harold D. Anderson**

*Attorney, Agent, or Firm*—**Robert A. Harman**

[57] **ABSTRACT**

Formed from trifunctional units (M) having attached, to one of two terminal carbon atoms of an alkylene hydrocarbon diradical, the functional group A', and having attached, to the other terminal carbon atom, a different

functional group B' reactive with A' to form a linkage AB; and having attached, to a third carbon of the skeleton of unit (M), the functional group A'' (preferably the same as A') reactive with B' whereby a macromolecule is built up of successive layers of units (M). The process involves successive stages in the first of which, the functional groups A' are blocked and group B is blocked with a "source" unit (S); then groups A' are liberated to form Compound I. In the second stage, Compound II is formed from the starting material (such as lysine) by first blocking groups A', then converting group B' to a form reactive with A'. Then a series of growth steps links two molecules of Compound II to each molecule of Compound I via reaction between activated B' groups of two Compound II molecules, and two liberated A' groups of Compound I; and the four blocked groups A' in the two newly added units are liberated to form Compound III. In stage C, the four A' groups of Compound III are reacted as before with Compound II, and the eight blocked A' groups of the resultant newly added units (M) are liberated to complete the third stage; and so on. Lysine is illustrative of suitable starting materials. The products can be used as surface modifying agents; as metal chelating agents; and as substrates for preparation of pharmaceutical dosages.

**5 Claims, 1 Drawing Figure**